Claim Amendments

1-20. (canceled)

21. (previously presented) An apparatus for determining vision defects and for collecting data for correcting vision defects of the eye of a patient by interaction with the patient, said apparatus comprising:

an adaptive optical system being configured to form an image to be perceived by the patient;

an electronic control system being operatively connected to said adaptive optical system;

said electronic control system comprising an arrangement configured to modify, at least once, the optical characteristics of said adaptive optical system in an attempt to minimize the distortions of the image as perceived by the patient through interaction with the patient;

an arrangement being configured to determine the modified optical characteristics of said adaptive optical system upon the patient perceiving minimized distortions of the image; and

apparatus being configured to determine vision correcting data from at least one signal indicating said modified optical characteristics

of said adaptive optical system.

22. (currently amended) The apparatus according to Claim 41 ~~21~~, wherein:

said adaptive optical system comprises a micromirror device operatively connected to said electronic control system.

23. (previously presented) The apparatus according to Claim 22, wherein:

said micromirror device comprising a plurality of micromirrors.

24. (previously presented) The apparatus according to Claim 23, wherein:

said micromirrors are configured to individually change optical characteristics in response to output signals from said electronic control system independently of an adjacent micromirror.

25. (previously presented) The apparatus according to Claim 24, wherein:

said micromirrors are configured to generate signals indicative of the modified optical characteristics of said micromirrors resulting from said modified image having minimized distortions as perceived by the patient.

26. (previously presented) The apparatus according to Claim 25, wherein:

said micromirrors are configured to be moveable to and stoppable in a plurality of positions between a first extreme position and a second extreme position opposite from said first extreme position.

27. (previously presented) The apparatus according to Claim 26, wherein:

said adaptive optical system is configured substantially as a segment of a sphere.

28. (canceled)

29. (currently amended) The apparatus according to Claim ~~28,~~ 27, further comprising one of:

an aberrometer device configured to measure aberrations of the eye of the patient; and

an aberrometer device comprising a Shack-Hartmann sensor; and

wherein:

each micromirror is configured to be moved by a membrane; said membrane being configured to be actuated by a force of one of: an

electrostatic arrangement, a piezo-electric arrangement, and a bimorph membrane arrangement; and

said electronic control system comprises a computer configured to compute vision correcting data using a Taylor polynomial and/or a Zernike polynomial on the basis of data from said aberrometer indicative of the aberrations of the eye of the patient, and vision correcting data computed from said adaptive optical system, as modified.

30. (previously presented) The apparatus according to Claim 27, wherein one of:

(a.) each micromirror is configured to be moved by a membrane; said membrane being configured to be actuated by a force of one of: an electrostatic arrangement, a piezo-electric arrangement, and a bimorph membrane arrangement;

(b.) said apparatus comprises an aberrometer device configured to measure aberrations of the eye of the patient;

(c.) said apparatus comprises an aberrometer device comprising a Shack-Hartmann sensor; and

(d.) said electronic control system comprises a computer

configured to compute vision correcting data using a Taylor polynomial and/or a Zernike polynomial on the basis of data from said aberrometer indicative of the aberrations of the eye of the patient, and vision correcting data computed from said adaptive optical system, as modified.

31. (currently amended) A method for determining vision defects and for collecting data for correcting vision defects of at least one eye of a patient by interaction with the patient using an adaptive optical system being configured to have its optical characteristics changed by at least one signal from an electronic control system, said method comprising the steps of:

forming an image to be perceived by the patient with said adaptive optical system;

determining the presence of distortions of the image as perceived by the patient by interaction with the patient;

modifying, at least once, the optical characteristics of said adaptive optical system through outputting of at least one signal of said electronic control system in an attempt to minimize the distortions of the image as perceived by the patient by interaction with the

patient;

determining the modified optical characteristics of said adaptive optical system upon the patient perceiving minimized distortions of the image; and

determining vision correcting data from at least one signal indicating said modified optical characteristics of said adaptive optical system.

32. (currently amended) The method according to Claim 42 ~~31~~, wherein:

said adaptive optical system comprises a micromirror device operatively connected to said electronic control system.

said micromirror device comprises a plurality of micromirrors;

said micromirrors comprise arrangements configured to respond to output signals from said electronic control system; and

said micromirrors are configured to change the optical characteristics in response to output signals from said electronic control system;

said method comprising:

providing at least one electrical signal from said electronic

control system to said micromirrors to change the optical characteristics of said micromirror device.

33. (previously presented) The method according to Claim 32, wherein:

said micromirrors are configured to generate signals indicative of the modified optical characteristics of said micromirrors resulting from said modified image upon the patient perceiving minimized distortions of the image;

said method comprising:

providing at least one signal from said micromirrors indicative of the modified optical characteristics of said micromirrors to an arrangement for computing vision correcting data for the eye being examined.

34. (previously presented) The method according to Claim 33, wherein;

said micromirrors are configured to be moveable to and stoppable in a plurality of positions between a first extreme position and a second extreme position opposite from said first extreme position;

said method comprising:

moving said micromirrors from a first position corresponding to an image as perceived by the patient to a second position corresponding to a modified image having minimized distortions as perceived by the patient.

35. (currently amended) The method according to Claim 34, wherein:

said adaptive optical system is configured substantially as a segment of a sphere;

said method comprising:

projecting an image onto said adaptive optical system configured substantially as a segment of a sphere; and

reflecting an image to be perceived by the patient from said adaptive optical system configured substantially as a segment of a sphere.

36. (previously presented) The method according to Claim 35, wherein:

each micromirror is configured to be moved by a membrane; said membrane being configured to be actuated by a force of one of: an

electrostatic arrangement, a piezo-electric arrangement, and a bimorph membrane arrangement;

said method further comprising:

moving said membrane by one of: an electrostatic force, a piezo-electric force, and a bimorph membrane force.

37. (currently amended) The method according to Claim 36, wherein said method further comprises:

determining aberrations of the eye of the patient with an aberrometer device configured to measure aberrations of the eye of the patient;

obtaining data indicative of the aberrations of the eye of the patient; and

correlating said data from said aberrometer indicative of the aberrations of the eye of the patient, with said vision correcting data computed from said adaptive optical system, as modified, resulting from said modified image having minimized distortions as perceived by the patient.

38. (canceled)

39. (currently amended) The method according to Claim 37 ~~38~~,

wherein:

said aberrometer device comprises a Shack-Hartmann sensor;

said electronic control system comprises a computer configured to compute vision correcting data using a Taylor polynomial and/or a Zernike polynomial;

said method further comprising:

computing vision correcting data, using a Taylor polynomial and/or a Zernike polynomial, on the basis of said data from said aberrometer indicative of the aberrations of the eye of the patient, and said vision correcting data computed from said adaptive optical system, as modified; and

applying corrective treatment to the eye being examined.

40. (currently amended) The method according to Claim 35, comprising one of:

(a.) each micromirror is configured to be moved by a membrane; said membrane being configured to be actuated by a force of one of: an electrostatic arrangement, a piezo-electric arrangement, and a bimorph membrane arrangement;

said method further comprising:

moving said membrane by one of: an electrostatic force, a piezo-electric force, and a bimorph membrane force;

(b.) determining aberrations of the eye of the patient with an aberrometer device configured to measure aberrations of the eye of the patient;

obtaining data indicative of the aberrations of the eye of the patient; and

correlating said data from said aberrometer indicative of the aberrations of the eye of the patient, with said vision correcting data computed from said adaptive optical system, as modified, resulting from said modified image having minimized distortions as perceived by the patient;

(c.) said aberrometer device comprises a Shack-Hartmann sensor; and

(d.) said electronic control system comprises a computer configured to compute vision correcting data using a Taylor polynomial and/or a Zernike polynomial;

said method further comprising:

computing vision correcting data, using a Taylor polynomial

and/or a Zernike polynomial, on the basis of said data from said aberrometer indicative of the aberrations of the eye of the patient, and said vision correcting data computed for the eye being examined from said adaptive optical system, as modified; and

applying corrective treatment to the eye being examined.

41. (new) The apparatus according to Claim 21, wherein said apparatus is configured to determine and obtain corrective data for lower order aberrations and higher order aberrations of the eye of a patient through interaction with the patient.

42. (new) The method according to Claim 31, wherein said method comprises a method for determining and obtaining corrective data for lower order aberrations and higher order aberrations of the eye of a patient through interaction with the patient.